



# Next Century Corporation

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NITRD HCI&IM

Frontiers of Visualization Meeting

# **WHO ARE WE? WHAT ARE WE PASSIONATE ABOUT?**

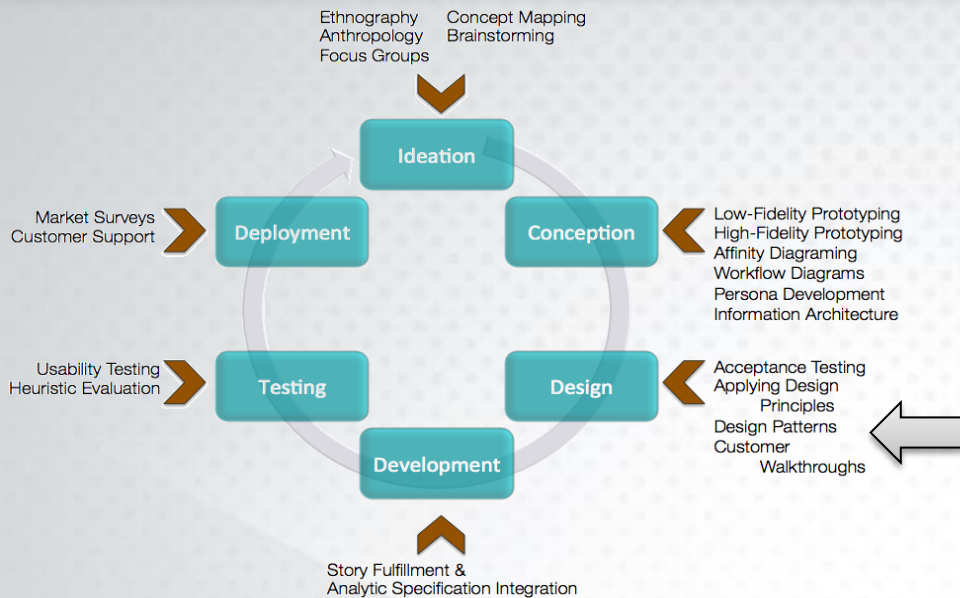
# Next Century Mission



Founded in February, 2002—in direct response to the events of September 11, 2001—with a clear, focused, purpose-driven mission:

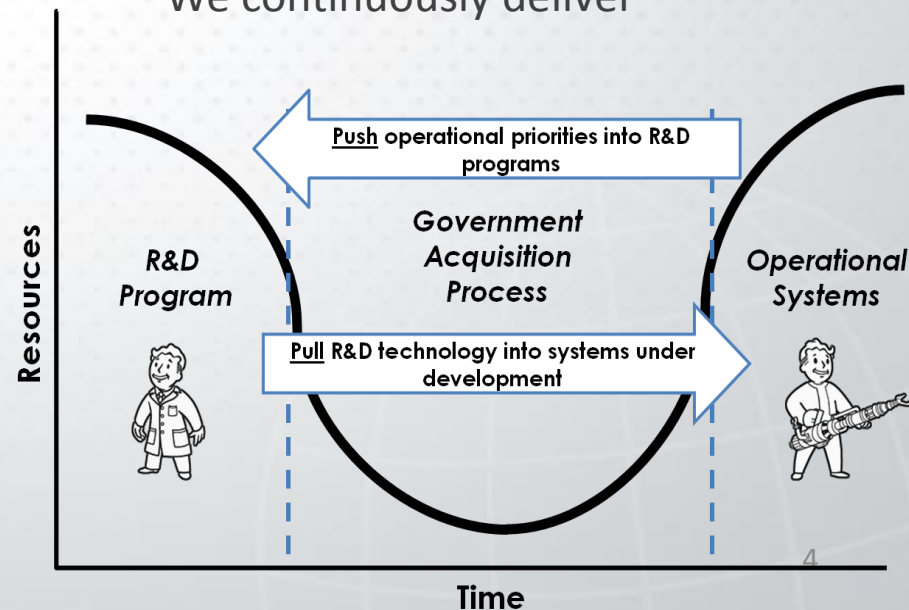
- To contribute directly to our nation's security and save lives by **delivering information to end users**
  - in real time
  - wherever they are
  - at a glance

# Our Unique Value



- From the lab to the end user (and back)
  - Our engineers are developers *and* researchers
  - We partner with universities and research companies
  - We bridge the “valley of death”

- From complex data to **Critical Insight™**
  - We use commercial User Experience best practices for digital interface design
  - Our interfaces are intuitive and informative
  - We continuously deliver



# Our Company



## Small, Employee-Owned Business

- Over 130 team members
- Most with TS/SCI full scope poly

## Three Facilities

- Columbia, MD (Headquarters)
  - Two certified, connected SCIFs
- Annapolis Junction, MD
  - 2 certified SCIFs with seating for 170 people
- McLean, VA



## Award winning

- **National Capital Business Ethics Award 2012**
  - Society of Financial Service Professionals
- **Best Places to Work 2011**
  - Baltimore Magazine
- **Customer Services Award 2011**
  - Smart CEO Magazine
- **Ernst & Young Entrepreneur of the Year**
  - 2011 Government Services Finalist

***Systems we've built are deployed world-wide saving lives and protecting our country every day!***





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# WHAT ARE WE DOING IN VISUALIZATION?

# Ozone Widget Framework (OWF)



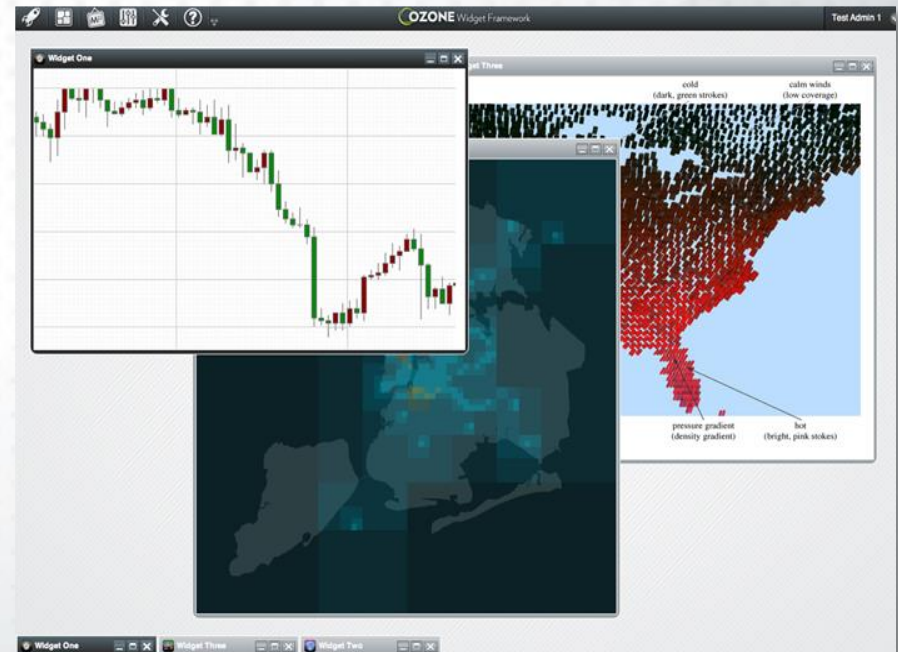
Customer: DoD Intelligence

## Problem

- An inability for analysts to take advantage of disparate applications in a common operating environment. To perform a workflow scenario an analyst may have to launch multiple browser windows across different monitors to perform a single function.

## Solution

- A widget framework that allows distributed applications to reside within the same web browser view.
- An Eventing API that allows for lightweight client side inter-widget communication to integrate applications at the presentation tier.
- Layout management to give analysts the flexibility to view their widgets in customizable dashboards.
- State management to enable stateful Common Operating Pictures configurable by a PMO or by the analyst.



## Results

- A thin client application framework that gives analysts the ability to create dynamic analytical workflows in a common operating environment. Currently being used across community partners throughout the DoD and IC.

# WISER (Wireless Information System for Emergency Responders)

Customer: National Library of Medicine



## Problem

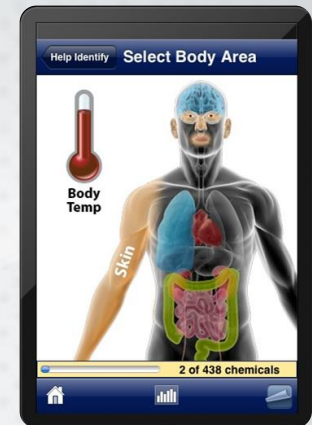
- First responders to a Hazmat incident must be able to rapidly determine the substance (chemical, radiological, or biological) and the appropriate response.

## Solution

- Mobile and web-based *decision support system* to quickly identify substance and provide critical substance information
- Synchronizes with the NLM Hazardous Substance Data Bank (HSDB) to provide *critical information* (patient care, chemical specs, protective equipment, containment suppression tactics, cleanup, etc.)
- Intuitive, simple, and personalized* user interface

## Results

- Operational versions for Palm OS, Blackberry, Pocket PC, iPhone, iPod Touch, iPad, Android, Windows, and Web
  - 5,000 chemical substances
  - Radiological/nuclear event support (30 radioisotopes)
  - Biological event support (12 agents)
- Freely available (over 400,000 copies in use worldwide)
- Very well received and appreciated by user community
  - "This is one of the best tools ever created for emergency response, period!" – DOD user



[HTTP://WISER.NLM.NIH.GOV](http://wisер.nlm.nih.gov)



# IED Discovery and Prevention Tool (IDAPT)



Customer: DARPA & Marine Corps

## Problem

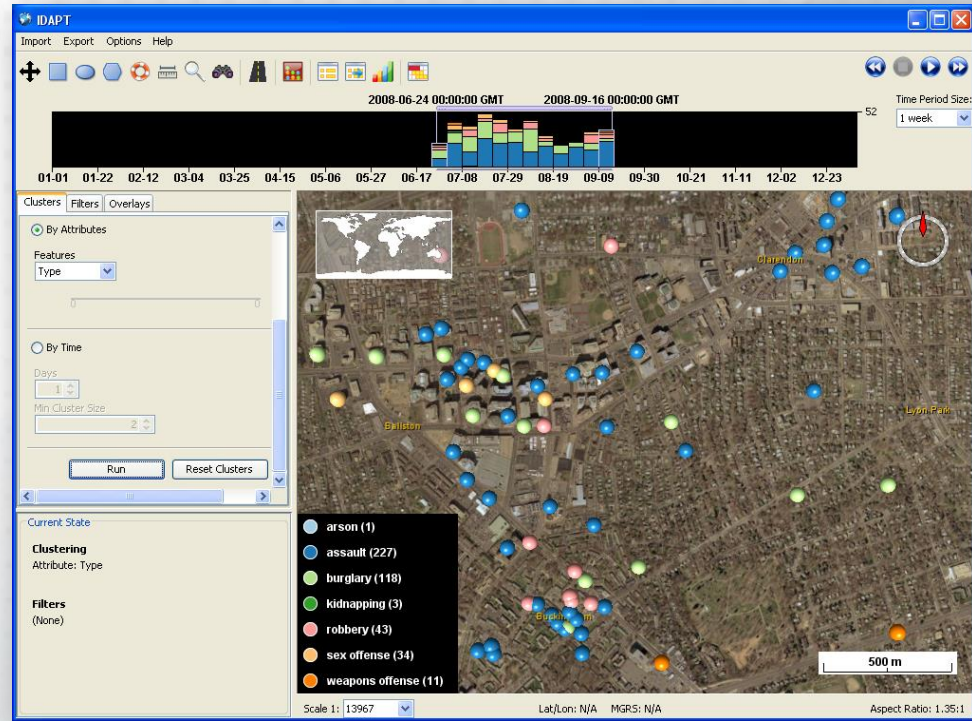
- The warfighter needs an intuitive visual analytics tool to aid in the interpretation and prediction of IED events.

## Solution

- IDAPT uses clustering and grouping algorithms to display patterns in events
- The testing and training data comes from the Marine Corps Combat Development Command in Quantico, VA
- Supports retrieval of archived data for analysis

## Results

- Currently deployed and in use in Afghanistan





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# **WHAT ARE YOUR CURRENT CHALLENGES IN YOUR WORK?**

# Neon Challenge

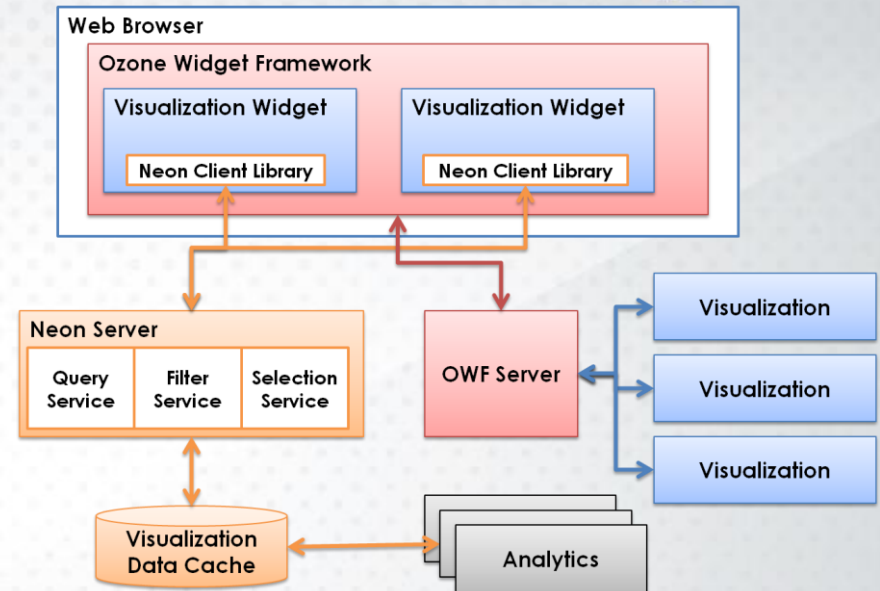


- The **visualization of data in multiple ways** increases critical insight.
  - A single visualization cannot tell the whole story.
- Multiple visualizations together compose **powerful analytic workflows.**
  - Today this is a complex and fragile process requiring users to move data between different visualization tools.

# Neon Visualization Framework



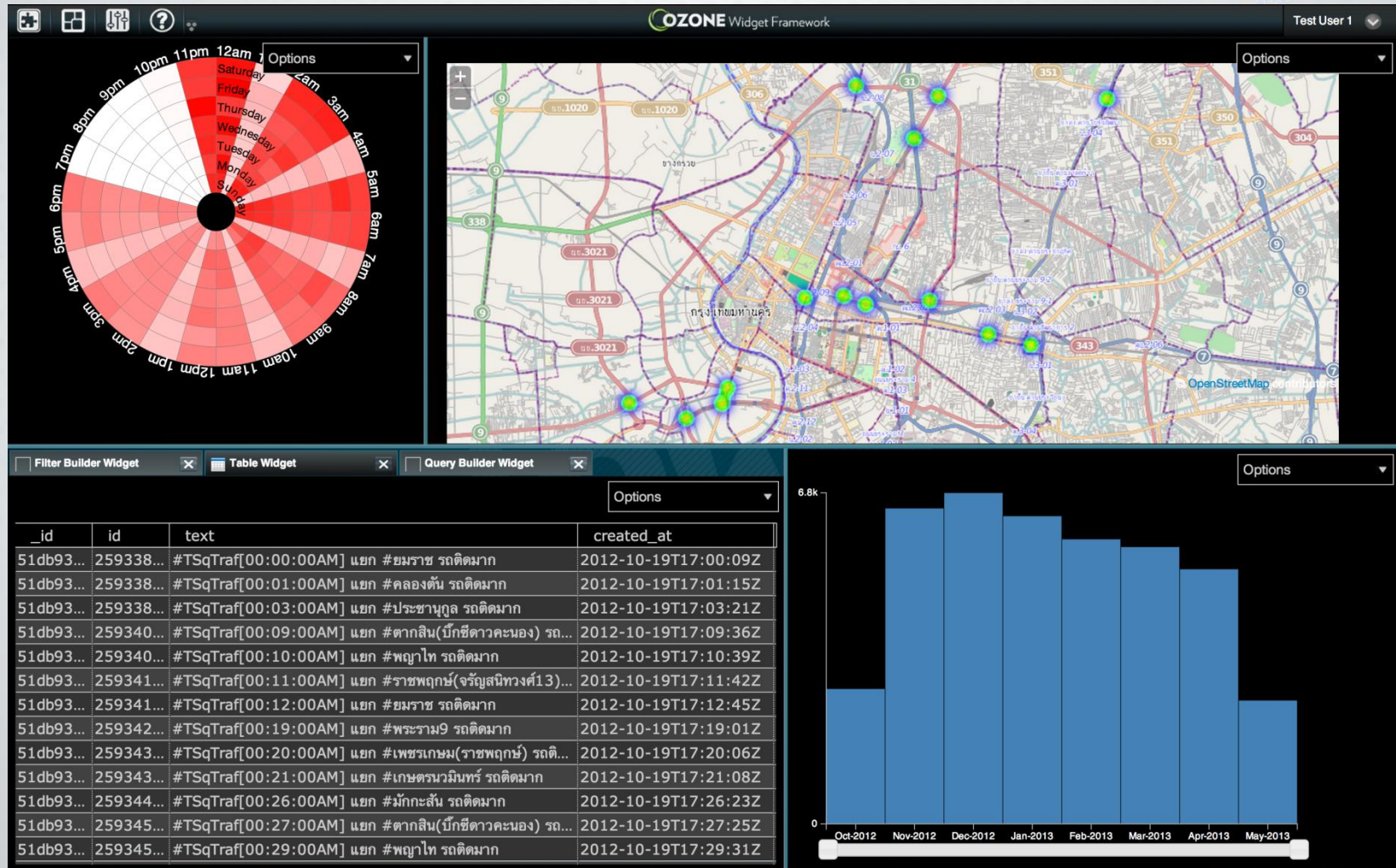
- Framework that **connects data sets and visualizations** inside a web application environment.
- Allows users to display their data in **their choice of visualizations**.
- **Synchronizes visualizations** so that user actions on one automatically adjust the views of others.
- Comes with a set of **common display controllers** that make working with multiple data sources and visualizations easy.



**Neon offers users extensive freedom in composing and operating visualizations for “big data.”**



# Sample Dashboard Using Neon





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# WHAT IS ON YOUR WISH LIST?

# Wish List



- Interaction framework enhancements to support both OWF and other HTML5 technologies
- Support for multiple data sources in one dashboard
- Support for graph databases
- Geospatial queries
- Streaming data